

NASA Ames pursues business opportunities at Nano 2005



About 400 people participated in the Nano 2005 Conference at the Westin Hotel Santa Clara in June.

Approximately 400 representatives from industry, academia and government came together for a successful two-day Nanotechnology 2005 conference at the Westin Hotel Santa Clara, June 7 - 8. Scott Budman, NBC 11 technology reporter and master of ceremonies, along with a welcoming address by Stan Newberry, deputy director of NASA Ames, kicked off the event.

The plenary sessions included dynamic and interactive discussions related to nanotechnology as it applies to semiconductor/electronics, biotechnology and aerospace /defense. Keynote speaker Matthew Nordan, vice president of research at Lux Research, addressed the group on the topic of 'Nanotechnology Myth and Reality: Separating Commercial Opportunity from Hype.' He was followed by keynote speakers Banny Banerjee and Craig Lawrence from international designing engineering company IDEO, sharing the topic of 'A Culture of Innovation.'

Day two of the conference featured a business focus starting off with keynote speaker Paul Saffo reflecting on the topic 'Risk and Failure - the Keys to Success.' The day concluded with expert speakers in the venture capital community and case studies from various new companies on how to create a successful start-up.

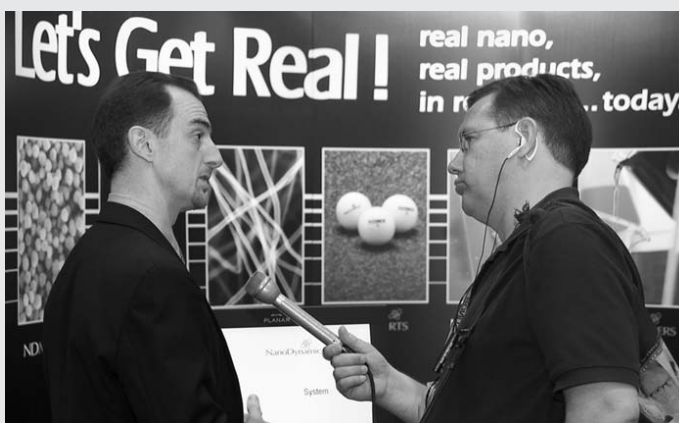
"The Nano 2005 Conference was designed to bring industry leaders together with NASA managers and technologists to discuss potential joint busi-

ness opportunities," said Lisa Lockyer, chief of the Technology Partnership Division. "We are already responding to dozens of leads that were made at this forum."

The conference, which was coordinated by the Technology Partnerships Division (Code EP), included an exhibition hall where companies such as mPhase Technologies, NanoBioNexus, NanoDynamics Inc. and others displayed their company products and capabilities. Several exhibits from NASA Ames also were on display.

For more information about the event, contact the Technology Partnerships Division at ext. 4-1754.

BY BETSY ROBINSON



Several members of the news media interviewed attendees at Nano 2005.

NASA photos by Dominic Hart



Scott Budman, NBC 11 technology reporter, served as master of ceremonies during the opening sessions at Nano 2005.

NASA scientists solve Mars south pole mystery

NASA scientists have solved an age-old mystery by finding that Mars' south-



The south polar cap of Mars as it appeared to the Mars Global Surveyor Mars Orbiter Camera on April 17, 2000.

ern polar cap is offset from its geographical south pole because of two different polar climates.

Weather generated by the two martian regional climates creates conditions that cause the red planet's southern polar ice to freeze out into a cap whose center lies about 93 miles (150 kilometers) from the actual south pole, according to a scientific paper included in the May 12 issue of the journal *Nature*.

"Mars' permanent south polar cap is offset from its geographic south pole, which was a mystery going back to the first telescopic observations of Mars," said the paper's lead author, Anthony Colaprete, a NASA Ames space scientist. "We used a combination of observations, including images from the Mars Global Surveyor, as well as computer climate models to identify the mechanisms that control the position of the southern polar ice cap. We found that the offset is a result of two martian regional climates, which are on either side of the south pole," he said.

The scientists found that the location of two huge craters in the southern hemisphere of Mars is the root cause of the two distinct climates.

"The two craters' unique landscapes create winds that establish a low-pressure region over the permanent ice cap in the western hemisphere," Colaprete explained.

Just as on Earth, low-pressure weather systems are associated with cold, stormy weather and snow. "On Mars, the craters anchor the low pressure system that dominates the southern polar ice cap and keep it in one location," Colaprete said.

According to the scientists, the low-pressure system results in white, fluffy snow, which appears as a very bright region over the ice cap. In contrast, the

scientists also report that 'black ice' forms in the eastern hemisphere, where martian skies are relatively clear and warm.

"The eastern hemisphere of the south pole region gets very little snow, and clear ice forms over the martian soil there," Colaprete said. Black ice forms when the planet's surface is cooling, but the atmosphere is relatively warm, according to scientists. "A similar process

occurs on Earth when black ice forms over highways," Colaprete explained.

Colaprete's co-authors include Jeffrey Barnes, Oregon State University, Corvallis; Robert Haberle, also of NASA Ames; Jeffery Hollingsworth, San Jose State University Foundation, NASA Ames; and Hugh Kieffer and Timothy Titus, both from the U.S. Geological Survey, Flagstaff, Ariz.

BY JOHN BLUCK

NASA ACC and Ames senior management co-host 'Partners in Excellence'

The NASA Ames Contractor Council (ACC) and NASA Ames senior management co-hosted the second annual Partners in Excellence reception on June 15 in the Ames Exploration Center. Approximately 150 civil servants and company executives enjoyed an opportunity to mix and mingle in an informal setting. ACC Co-Chair Linda McCahon, of INFONETIC welcomed attendees and discussed the council's current activities.

ACC Educational Outreach Committee Chair John Watkins, of EASI, shared highlights of ACC sup-

port for education projects this year. NASA Ames Center Director G. Scott Hubbard expressed optimism about the future of NASA and Ames. This year's event was organized by Michael



Left to right: Mark Leon, John Watkins speak with Ames Center Director G. Scott Hubbard at the ACC 'Partners in Excellence' event.

NASA photos by Dominic Hart



Left to right: Mike Swiger, Ames Center Director G. Scott Hubbard and ACC Co-Chair Linda McCahon at the recent ACC 'Partners in Excellence' event.

Swiger of QSS. It was once again a very successful collaboration for the Ames civil servant and contractor community.

The Ames Contractor Council meets monthly to discuss issues and activities that relate to contractors and the well-being of the Center.

BY DOREEN COHEN,
ACC VICE CHAIR

NASA scientists confirm liquid water on early Earth

Research funded partly by NASA has confirmed the existence of liquid water on the Earth's surface more than 4 billion years ago.

Scientists have found that the Earth had formed patterns of crust formation, erosion and sediment recycling as early as 4.35 billion years ago. Their findings came during a study of zircon crystals formed during the earliest period of Earth's history, the Hadean Eon (4.5 billion to 4.0 billion years ago).

"NASA is interested in how early the Earth had abundant liquid water. If oceans form early in a planet's history, then so can life," said Carl Pilcher, senior scientist for astrobiology at NASA Headquarters. "Learning how early oceans formed on Earth will help us understand where else oceans and perhaps even life may have formed in this solar system and in planetary systems around other stars."

"This work provides direct evidence that the Earth was probably habitable within a hundred million years of its formation," said Bruce Runnegar, director of the NASA Astrobiology Institute (NAI) at NASA Ames, which provided some of the study's funding.

Published in the May 6, 2005, edition of *Science*, the research was conducted by T. Mark Harrison of the Research School of Earth Sciences, Australian National University, Canberra and the University of California, Los Angeles; and E. Bruce Watson of the Department of Earth and Environmental Sciences at Rensselaer Polytechnic Institute, Troy, N.Y. Field research was completed in Western Australia's Jack Hills, which preserve a record of the Hadean Eon.

Watson and Harrison devised a new method of determining the temperatures at which the rocks formed. The team extracted and examined more than 50,000 zircons, crystals about the width of a human hair, which have been exposed through natural erosion in the Jack Hills. From the 50,000 zircons, only a couple of hundred were older than 4.2 billion years. Measuring the temperature at which the rocks melt gives an indication of the conditions in which they formed.

"Rocks formed as a result of the thermal energy from meteorite impacts would be bone dry and melt at greater than 900 degrees Celsius," said Harrison. "In contrast, our study has found that Hadean rocks melted at a consistent average temperature of 690 degrees Celsius. Water, which is a very powerful catalyst, must have been present in very large amounts for rocks to melt at such a relatively low temperature."

This discovery supports the pro-

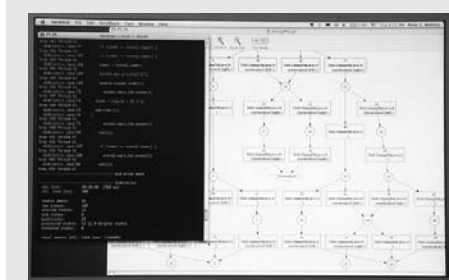
posal by Harrison's group four years earlier that a heavy oxygen isotope signature in the Hadean zircons is evidence for liquid water at or near the Earth's surface by 4.3 billion years ago.

The NAI, founded in 1997, is a partnership between NASA, 16 major U.S. teams and five international consortia.

NASA software detects Java 'bugs'

NASA scientists recently announced the release of free software that will find 'bugs,' or defects, in Java computer code.

The new software, Java Pathfinder, is classified as 'open source software.' Open source software is computer code that scientists make publicly available, often at no cost, so users can freely utilize and modify it. Java is a computer



NASA photo by Dominic Hart

Java computer code screen.

language that software developers frequently use to write programs for computer networks such as the Internet.

"Java PathFinder is a program that helps people find 'bugs' in other programs," said John Penix, a computer scientist at NASA Ames. "PathFinder runs the program under test through a lot of trials, and tries to find a test that will cause the program to fail."

NASA Ames is providing Java PathFinder as 'open source' code at no cost to people who would like to use it, according to Penix. "This will enable other people to help us improve the PathFinder software," he said. "NASA will benefit from the improvements. We're doing this so we can leverage the open-source community," he added.

The Java Pathfinder work "is part of an effort to develop tools and methods to identify and eliminate software errors in NASA's increasingly complex and mission-critical software systems," according to David Korsmeyer, who leads Ames' Intelligent Systems Division.

NAI's goal is to promote, conduct and lead integrated multidisciplinary astrobiology research and to train a new generation of astrobiology researchers.

For more information about the NAI on the Internet, visit <http://nai.arc.nasa.gov>

BY NICHOLAS A. VERONICO

"Java Pathfinder was used to detect inconsistencies in the executive software for the K9 Rover at NASA Ames," Korsmeyer said. The K9 rover is a six-wheeled, solar-powered rover developed jointly at Ames and NASA's Jet Propulsion Laboratory (JPL), Pasadena.

In addition, computer scientists used elements of Java Pathfinder to develop verification computer code for Livingstone 2 software, a diagnosis system now flying on the EO-1 spacecraft "and an example of the kind of autonomy software that will be crucial to future NASA missions," Korsmeyer said.

"We're continuing to develop software-testing technologies," said Penix. "NASA has a lot of software, and it is difficult to get it right; so we want to take advantage of all the work that is going on out there and incorporate it into our tools," he explained.

According to scientists, if PathFinder finds an error in a Java application, the software checker reports the whole process that leads to the bug. Unlike a normal debugger, Java Pathfinder keeps track of every step the software checker takes to find a defect, Penix noted.

"PathFinder already has been enhanced and tested by several universities and companies," Penix said. "Now, additional universities can add more features to PathFinder," he said, describing how providing Java Pathfinder to the computing world could benefit NASA. Pathfinder is in its sixth year of active development.

NASA Ames scientists are offering Java PathFinder on a Web site, SourceForge.net located at <http://sourceforge.net/index.php>

Open Source Technology Group Inc. owns SourceForge.net. Its parent company is VA Software Corporation, Fremont. PathFinder is available under the NASA Open Source Agreement, an open source license approved by the non-profit Open Source Initiative on the Web at www.opensource.org Java is a trademark of Sun Microsystems.

BY JOHN BLUCK

Ames holds 2005 Presidential Rank, NASA Honor Awards ceremony

The 2005 Presidential Rank and NASA Honor Awards Ceremony for Ames Research Center was held on June 8. The awards were presented to 23 employees who have been selected for individual awards and to the managers of the 13 groups that have been selected for the NASA Group Achievement Award. The names of the honorees are listed below.

This year's newest award is the One NASA Peer Award in the category of 'Center Best.' The OneNASA Peer Award Program was created to encourage OneNASA-like behaviors across the agency.

Presidential Rank of Meritorious Senior Professional

Meyya Meyyappan

Exceptional Achievement Medal

Robert Key Dismukes
Michael P. Frediani
David Hollenbach
Dolores M. Morrison
Karlin R. Toner
Joseph D. Shields
Hanwant B. Singh
My H. Trang

Exceptional Service Medal

Jane K. Babicz
Christine N. Gong
Dean A. Kontinos
Susan D. Parkhurst
William Thigpen

Outstanding Leadership Medal

James A. Brass
Leroy S. Fletcher
Gary C. Jahns
David J. Korsmeyer
Charles A. Smith
Huy K. Tran

One NASA Peer Award Center Best Award

Thomas L. Roellig



NASA photo by Dominic Hart

Meyya Meyyappan, center, received the 'Presidential Rank of Meritorious Senior Professional' award at the recent NASA Honors ceremony.

Presidential Rank of Meritorious Executive

Estelle P. Condon
Thomas J. Moyles

Public Service Medal

Angela M. Boyle
Esther L. Hill
Liam Pedersen

Exceptional Engineering Achievement Medal

Banavar Sridhar

Group Achievement Award

Advanced Air Transportation Technologies Project Team

Ames Research Center Human Resources Team

Ames Research Center Return To Flight Space Shuttle Program Support Team

Aviation Data Integration System Technology Development Team

Exploration Technology Directorate Outreach Team

Intercontinental Chemical Transport Experiment-North America Science Team

Joint Ames/Langley Distributed Air/Ground-Traffic Management Simulation Team

Livingstone on Earth Observing-1 Team

Multi-Center Traffic Management Advisor Development and Test Team

Project Columbia Team

STS-107 Life Science Payload Team

University Affiliated Research Center Source Evaluation Board Team

X-37 Wing Leading Edge Thermal Protection System Project Team

OneNASA 'Best of the Best' peer awards

Every NASA center (including Headquarters and the Jet Propulsion Laboratory) recently selected the first OneNASA center best award recipients. These awards recognize individuals and teams who demonstrate OneNASA behaviors of decision-making for the common good, collaborating to leverage existing capabilities and standardizing to achieve efficiencies agency-wide.

Information about the 11 center-best recipients and their outstanding achievements is available on the OneNASA Web site at: http://www.onenasa.nasa.gov/TRIBUTES/Award_winners.htm

The agency-wide OneNASA team reviewed the 11 candidates and selected Melvin Ferebee, of Langley Research Center, as the agency 'Best of the Best' award recipient. Ferebee was recognized for his role in creating the Systems Analysis Consortium. Langley Director Roy Bridges accepted the award on behalf of Ferebee during the Agency Honor Awards ceremony in April.

Ferebee's award features a map of the United States highlighting all the NASA centers, signed by all 10 center directors and the NASA deputy administrator.

NASA Ames engineer honored by hispanic magazine

The editors of Hispanic Engineer and Information Technology magazine have named NASA Ames engineer Dr. Jolen Flores to its '50 Most Important Hispanics in Technology and Business' list for 2005.

Hispanic Engineer & Information Technology

Flores, chief of the Aircraft Project Office at NASA Ames, was selected for this year's honor on the basis of his many years of leadership in technology and his contributions to the Hispanic community.

"It is very rewarding on a personal level to be recognized for one's accomplishments. But it is an even bigger thrill to know how this reflects on the hard work, the teamwork, that drives us at NASA to overcome the many challenges and meet our mission goals," Flores said. "The challenges consume and excite us at work such that we rarely have time to step back and savor our achievements. I think this award demonstrates that if you work hard and as a team, the rewards will follow on their own."

"I am very proud and gratified that Jolen Flores' outstanding leadership and technical contributions have again been recognized," said NASA Ames Director G. Scott Hubbard. "As an accomplished engineer, he continues to be an outstanding role model to our country's youth."

"This honor simply confirms what you already know: that your years of achievement and hard work have made a positive change in your profession and your community," wrote magazine publisher and CEO Tyrone D. Taborn in a letter to Flores announcing his selection.

Flores holds bachelor's and master's degrees in mathematics and a doctorate in engineering science/mechanical engineering from the University of California, Berkeley. He began his career at NASA Ames in 1981 as a research scientist in computational aerodynamics. Flores received the Outstanding Technical Achievement Award in Government from the Hispanic Engineer National Achievement Awards Corp., Los Angeles, and Technica magazine in 2003.

Honorees are chosen for the magazines' annual list on the basis of their outstanding work in technology and their leadership of the institutions at which they are employed. The list includes many of the nation's highest-

achieving Hispanic executives, managers and researchers in industry, government and academia. "These women and

in technology-related jobs.

The honorees will gather on Sept. 16, 2005 in Baltimore, Md., for a colloquium and awards dinner as part of the Minorities in Research Sciences Conference, a career development and employee recognition event for minorities in the areas of research science and technology.

This year's honorees are featured in the magazine's April/May issue, which is distributed to engineering colleges and universities with high Hispanic enrollments; to Hispanic engineering, information technology and science professionals; and to high-level government and industry policy makers and executives across the country.

For more information about Hispanic Engineer & Information Technology magazine, go to: www.hispanicengineer.com

BY ANN SULLIVAN



NASA photo by Dominic Hart

NASA Ames engineer Jolen Flores recently chosen by Hispanic Engineer and Information Technology magazine as one of the '50 Most Important Hispanics in Technology and Business' for 2005. He is seen here in a lab working with a thermal imaging system in infrared.

men have demonstrated leadership on a broad front, not only in the workplace, but in their communities as well," according to the magazine. Each year's honorees serve as role models to young people, and the honorees' accomplishments are offered as examples of the important contributions made on a regular basis by the thousands of Hispanics

Sandford chosen for Hayabusa mission

Scott Sandford of the Ames Astrophysics Branch has been selected as a participating scientist in Japan's Hayabusa (Falcon) mission, following a competitive selection by NASA.

Hayabusa (formerly MUSES-C), a sample return mission to an asteroid, was launched in May 2003. In September 2005, the spacecraft will rendezvous with the asteroid Itokawa, where Hayabusa will spend five months gathering topographic and range information about the asteroid's surface.

Hayabusa will fire a small bullet into the asteroid's crust, and a cone-shaped funnel on the probe will scoop up soil and rock fragments kicked up

by the impact. The sample will be carried back to Earth in a capsule inside the probe. No probe has brought back extraterrestrial samples since the American and Russian moon programs of the late 1960s and early 1970s.

Sandford will participate in the preparations for sample return and apply his expertise in organic molecules and isotopes in the subsequent science analysis of the samples. This mission participation is a natural complement to his role in Stardust, a NASA probe that collected samples from comet Wild-2 in early 2004 for return to Earth in January 2006.

BY NICK VERONICO

Galileo scholarship winners for 2005 announced

The San Francisco Section of the American Institute of Aeronautics and Astronautics (AIAA), along with NASA Ames, awarded Galileo Memorial Scholarships to three Bay Area high school seniors at an awards banquet held in Mountain View on May 26, 2005. The scholarship recipients included Jocelyn Chin (Mountain View High School), Lauren Finzer (Miramonte High School, Orinda), and Stephanie Swenson (Woodside High School, Redwood City). Award amounts ranged from \$500 to \$1,000.

In addition to the awards ceremony, recipients were treated to a presentation by Dr. David Des Marais—principal investigator of the NASA Ames Astrobiology Institute—entitled ‘The Mars Exploration Rovers: Following the Water.’ Des Marais presented evidence gathered by the Mars rovers that suggests large quantities of surface water covered Mars’ northern hemisphere during its early history.

The scholarship recipients were selected from almost 150 applicants based upon their superior academic performance and their numerous extracurricular accomplishments. Two weeks prior to the awards selection, several scholarship finalists were invited to Ames for a day-long visit. Among these impressive students were two children of current Ames employees: Mary Jacklin is the daughter of Stephen Jacklin (of Code TI), and Stephanie Swenson is the daughter of Harry Swenson (of Code AV). Ames personnel provided tours of several facilities and laboratories, including the arc jet facility, the Unitary wind tunnel and the robotics lab. The students also got to try their hand at landing the space shuttle in the vertical motion simulator.

The majority of the scholarship finalists were female. “It’s exciting to see more and more young women poised to make an impact on the future of science and engineering,” said Fanny Zuniga, chair of the Galileo Scholarship Committee.

The Galileo Memorial Scholarship was established jointly by Ames and the San Francisco Section of AIAA to commemorate the crew who perished in the Galileo I aircraft accident on April 12, 1973. The Galileo I was a Convair 990, operated by Ames as an airborne laboratory for research in aeronautics, astronautics, astronomy and Earth observa-

tions. Any Bay Area high school senior who intends to pursue a career in engineering, mathematics, or the physical or natural sciences is eligible to apply. The scholarships are merit-based, and the

lecting the finalists and the eventual winners is a grueling process, but it’s inspiring at the same time.” The scholarship program is currently funded and administrated by AIAA and is in critical



NASA photo by Dominic Hart

From left to right, the Galileo scholarship winners are: Jenny Liu (Albany High School); Amita Seshadri (American Senior High School, Fremont); Lauren Finzer (Miramonte High School, Orinda); Mary Jacklin (Will C. Wood High School, Vacaville); Xiao-Yu Fu (Middle College High School, El Cerrito); Jocelyn Chin (Mountain View High School); Stephanie Swenson (Woodside High School, Redwood City).

selection process is extremely rigorous. “The standards applied are more selective than those of any university in the country,” said Galileo scholarship committee member Eric Mueller. “Se-

lection process is extremely rigorous. “The standards applied are more selective than those of any university in the country,” said Galileo scholarship committee member Eric Mueller. “Se-

need of both volunteers and financial donors to remain viable. For more information, refer to the AIAA San Francisco Section Web site at www.aiaa-sf.org.

BY KATHLEEN STARMER AND TODD FARLEY

Secretary of State visits Bay Area



NASA photo by Dominic Hart

On May 26, Secretary of State Condoleezza Rice arrived at Moffett Federal Airfield. She spoke in San Francisco on May 27. Here she is greeted by Ames’ Lewis Braxton.

NASA Ames, Navy planning next steps for Historic Hangar One

In 1997, during routine testing, NASA Ames discovered an unusual

Although intended to house the USS Macon, the hangar's eight acres of clear

killed, but it marked the end for the new base and its huge hangar. Government officials began to doubt the worth of such vehicles and deemed them obsolete. In 1935, the facility was turned over to the Army for use as a primary training center.

From 1935 to 1942, the base remained under Army control and became the home for the 82nd Army Observation and the 9th Airbase Material squadrons. Following the bombing of Pearl Harbor, the site reverted back to a naval base in April of 1942. Over the years, Hangar 1 provided space for maintenance of aircraft, training facilities and offices for both the Army and Navy until its transfer to NASA Ames Research Center as part of the base closure in 1994. Most recently, Hangar One housed the Moffett Field Historical Society Museum and was used as a display space for air shows, open houses and various commercial and public functions until its closure in 2002.



polychlorinated biphenyl (PCB), Aroclor 1268, in the storm drain settling basin. Subsequent sampling programs determined in 2002 that Hangar One was the source of Aroclor 1268. As a result of the high levels of PCBs present in the Hangar One building components, Hangar One was closed to human use as required by the Toxic Substance Control Act (TSCA).

In 2003, the Navy completed an interim control measure, known as a time-critical removal action (TCRA), for the short-term protection of human health and the environment. This method included applying a specialized coating to the exterior surface of Hangar One to seal the materials on the building surface for a period of three to five years. However, recent sampling indicates that PCBs continue to escape into the environment. This could be PCBs from the interior of the hangar, and/or as a result of the weathering of the coating. As the life of the temporary sealant nears its end, the Navy must now consider actions to address the imminent threat to human health and the environment from the PCBs in Hangar One. The available options to address the problem could have an adverse effect on the hangar's historic properties.

Hangar One was designed and built by the Navy at Moffett Field in 1932 at a cost of \$2.25 million. At 1,133 feet long, 308 feet wide and 198 feet high, Hangar One was the second tallest building in the South Bay. It was constructed as the new home for the dirigible Macon, the largest aircraft in the world at the time.

floor space were designed ultimately to house airships of nearly twice the volume of USS Macon. The Macon completed its maiden voyage across the United States to Sunnyvale, arriving with much fanfare on Oct. 15, 1933 after a 70-hour flight from Lakehurst, NJ. The

The Environmental Forum

Topic: Hangar 1 Activity
Presented by:

Sandy Olliges, deputy director, Safety Environmental and Mission Assurance Office

Tom Anderson, NEPA/conservation compliance manager, ISSi

Date: July 7

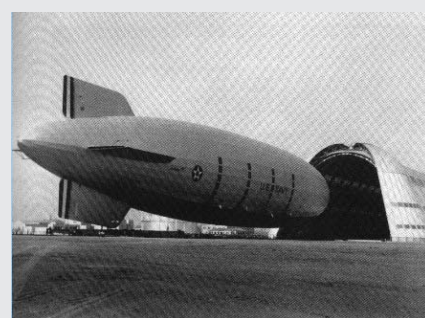
Time: 8:30 a.m. to 9:30 a.m.

Location: Building 221, Room 155

POC: Stacy St. Louis, ext. 4-6810

Macon was housed and maintained in Hangar One.

Tragically, Macon's sister ship, the Akron, crashed with the loss of all hands, including Admiral William A. Moffett. On May 17, 1933, the facility landing field was renamed Moffett Field in honor of the admiral. On Feb. 12, 1935, the Macon shared the same fate as the Akron, crashing into the water off of Point Sur, California. Only two people were



USS Macon enters Hangar One.

To learn more about the Navy's plans for Hangar One, you are invited to attend one of the upcoming public meetings.

Restoration Advisory Board (RAB) meeting on July 14, at 7:00 p.m. to 9:00 p.m. in Mountain View City Hall

An open house will be held Aug. 18, 5:00 p.m. to 8:00 p.m. at Ames in Bldg. 943, in the Space Station Room.

A public meeting is set for Sept. 14, from 6:00 p.m. to 9:00 p.m. at NASA Ames, in Bldg. 943, Eagle Room.

BY STACY ST. LOUIS

It must be summer -- the student interns are here!



Eleven higher education programs summer interns are seen here with their mentors and higher education programs staff, Division Chief (Acting) Mark Leon; program administrator Brenda Collins; program coordinator Maricela Varma; and program assistant Karisa Gonzales. The interns will be at Ames for 10 weeks conducting research and scientific experiments.

NASA photo by Astrid Terlep

Germany's Minister of Science tours Ames



NASA photos by Dominic Hart



Professor Peter Frankenberg, left, the Baden-Württemberg Minister of Science, Research and the Arts in Germany, visited Ames with his wife and fellow scientists recently. He toured the Kuiper Airborne Observatory (KAO) with Hans Peter Roeser, Eric Becklin and Ed Erickson, SOFIA facility scientist and former KAO principal investigator.

Proper handling of sensitive information

Thieves know that 'dumpster diving' is the quickest and easiest way to steal company secrets or personal identities. Trash bins can hold anything from executive itineraries to detailed budgets to personal phone number lists. At Ames, this type of sensitive information is improperly discarded in the hundreds of pounds on a weekly basis. As Ames evolves into a more open campus, this issue will only grow in importance.

ACI/SBU/OPSEC Terminology

The federal government uses the term 'Sensitive But Unclassified (SBU)' to identify non-classified sensitive information. At Ames, we strive to prevent the disclosure of such data by identifying it with the NASA designator 'Administratively Controlled Information (ACI).' Both ACI and SBU describe uncontrolled/unclassified information and actions that reflect an organization's capabilities, activities and intentions.

'Operations Security (OPSEC)' is, among other things, a method for identifying ACI/SBU. Consider the following three OPSEC criteria for recognizing ACI/SBU:

1. Information that provides an organization's profile or behavior pattern by describing how activities are normally conducted;
2. Information that shows a deviation from an organization's normal pattern of conduct or profile; and,
3. Information that points to areas where a potential adversary should focus its collection capabilities.

Some general indicators of ACI/SBU include:

- agenda and location of an event or meeting;
- restrictions on event attendance;
- itineraries and hours of operation;
- arrival/departure time and place;
- staff composition or organization charts;
- activity intensity including number of personnel and volume of communications traffic;
- emblems and acronyms that identify organizations and their activities;
- budgetary/financial data;
- phone lists; and
- standard operating procedures

Any one of the above items can provide an adversary with potentially damaging insight into our internal operations. Consider a scenario whereby simple budgetary data could provide information on what security hardware is planned for purchase or maintenance. An arrival and departure log of techni-

cal consultants would provide further indication of where the hardware is destined and for what purpose.

Event information identifying speakers and attendee clearance requirements explains to evil-doers where an organization's focus and concerns lie. Moreover, it could provide a means for obtaining copies of speakers' presentations.

Management charts and phone lists provide rich opportunities for tracking the comings and goings of an organization. For example, an after-hours call to an executive may provide information in the voicemail greeting on their whereabouts and the duration of their time away from the office.

What can be done:

Protect the dissemination of ACI/SBU information by identifying it to recipients with an ACI cover sheet (NASA Form 1686). Also, consider placing a footer on sensitive documents with narrative similar to the label in the box to the right.

Keep sensitive information away from open traffic areas and in a protec-

tive folder or desk drawer. Dispose of outdated, unnecessary ACI/SBU in a shredder – never place ACI/SBU in a

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For more information about OPSEC and ACI/SBU, contact Ames Physical Security at ext. ext. 4-1783 or visit the Web at: <http://www.opsec.org/who/> Also visit www.fas.org/sgp/crs/RL31845.pdf; and/or <http://www.aau.edu/research/Info.pdf> and <http://www.loc.gov/rr/frd/pdf-files/sbu.pdf>

BY LEU VASQUEZ

Recycling workshop held at Ames



NASA photo by Tom Trower

Workshop participants during the recent recycling and affirmative procurement and pollution prevention workshop at Ames.

The 2005 Recycling and Affirmative Procurement and Pollution Prevention Workshop took place recently at NASA Ames.

Keynote speakers included James Leatherwood, division director of the Environmental Management Division

at NASA Headquarters, and Karl Rábago, group director, Clean and Renewable Energy, at the Houston Advanced Research Center.

For further information, visit <http://nasarecycles.nasa.gov/rapworkshop2005.htm>

Former Ames employee David Reese passes on

David Edward Reese Jr., died May 24 of an embolism, in Honolulu, HI at the age of 80. The death was abrupt, gentle and efficient - words that describe his life.

Born in Southern California on March 9, 1925, Reese graduated from CalTech with a master's degree in aeronautics and he worked briefly in the south before coming north to join the NACA team, which later became NASA. He loved his 30 years at Ames and told many stories about Harvey Allen -- and all the test pilots, all the people with whom he so enthusiastically worked. He was also project manager for one of the early entry probe technology efforts that paved the way for understanding the entry of bodies into planetary atmospheres.

After retirement from Ames, he earned another masters in health services management and took an administrative internship at Kuakini Medical Center in 1982, later joining the staff as



David Reese Jr.

director of productivity management.

Retiring again at age 65, he volunteered as systems administrator at the

local Multiple Sclerosis Society. Helping many offices, churches and groups with their computer and bookkeeping systems, he earned a Governor's Kilohana Award for being an outstanding volunteer. He lived a fruitful life.

He is survived by his wife, Mary; daughters Susan and Karen; sons David and Kevin; and stepsons Ted, Mike and Jay Pecot; and 14 grandchildren. Services were held at the Church of the Crossroads in Honolulu on May 31. In lieu of flowers, donations may be made in Reese's memory to The Honolulu Symphony or Church of the Crossroads. There also will be services in Palo Alto later this summer.

International Travel Update

Ames has a new international travel coordinator. Mary Williams has joined the International Services Team.

Williams took the position vacated by Maureen Weller upon her retirement in April. With a couple of years of experience working with international visitors, a strong desire to make the process run smoothly, and a healthy sense of humor, Williams is an excellent fit as the 'principal gatekeeper.'

Just a reminder, if you are part of the international travel process (traveler, travel order preparer and/or associate gatekeeper), then you will need to familiarize yourself with the process and your team. Check the travel Web site at <http://travel.arc.nasa.gov> for all the current forms, requirements and contacts you should need.

If you have questions about Ames' international travel process, check the Web at <http://travel.arc.nasa.gov>; contact the associate gatekeeper for your directorate at <http://travel.arc.nasa.gov/gatekeepers.html>; e-mail the Ames international travel coordinator (principal gatekeeper) at Mary.P.Williams@nasa.gov; or call her at ext. 4-4439.

Former NOAA chief scientist presents colloquium at Ames



NASA photo by Tom Trower

Dr. Sylvia Earle, scientist, explorer, author, oceanographer, diver, entrepreneur and eternal romantic, presented a director's colloquium on the subject of 'Sustainable Seas' in May in the main auditorium (N201). Earle is the former chief scientist of the National Oceanic and Atmospheric Administration (NOAA). She is a leading American oceanographer who has spent more than 6,000 hours underwater. During the colloquium, she discussed her diving adventures and the changes that mankind has unleashed on the planet's seas. The story is detailed in her book 'Sea Change, a Message of the Oceans.'

High school students conduct space biology research at Ames

A team of high school students had the unique opportunity to conduct its own authentic space biology research on one of the state-of-the-art ground-based hypergravity facilities at Ames during one week in May.

The team of five high school students from Troy, Mich., named the 'Centrifu-G's,' won the national Hyper-G contest, a new Exploration Systems contest managed by the Life Sciences Division at Ames. After winning the contest in January, the team conducted control experiments with the help of science and engineering advisors from Ames in preparation for its visit to the facility. After conducting control experiments at its school with the help of their teacher, the team ran its experiment at Ames using the 8-foot centrifuge.

Centrifu-G team members studied wound healing in the flatworm *Planaria* (genus *Dugesia*), which has many physiological systems in common with human beings. This species is also a common classroom specimen. Students hypothesized that flatworms exposed to hypergravity would experience a slower rate of regeneration.

"Studying the combined processes of wound healing and gravity stress in these tiny animals may provide clues as to how wounds will heal in space or on the surface of Mars or the moon, where gravity is less," said Jeff Smith, assistant chief of the Ames Gravitational Research Branch and lead scientific advisor for the Hyper-G competition.

The student team is currently analyzing its data and seeing a trend that exposure to hypergravity actually may have increased regeneration in the flat worms.

"It looks like the worms that were spun on the centrifuge regenerated faster than the controls. This is the opposite of our hypothesis. We learned that science does not always work out the way you planned, but you can still get interesting results," said team member Charlie Lin, a sophomore at Troy High School.

During the students' visit to Ames, they also were able to tour many of the facilities at Ames and meet with scientists involved with research on upcoming flights. The students also met astronauts Yvonne Cagle and Janice Voss.

"This experience was so amazing for us. We were able to do our experiment, visit all kinds of facilities and



NASA photo by Tom Trower

The 'Centrifu-G' high school team members, seen here with astronaut Janice Voss, back row, third from left, recently conducted their own space biology research at Ames.

meet astronauts. That was so cool," said team member Shirley Zhang, a junior at Troy High School.

This competition and student experiment was the realization of a dream of BJ Navarro, outreach manager for the Life Sciences Division and assistant chief of the Science Payloads Operations Branch. She sought for many years to find a way to give high school students an opportunity to conduct authentic research.

"I wanted to bridge the gap between the scientific process that students learn in school and real-world research. Starting a competition that emulated the process that scientists go through to use NASA facilities seemed like the best way to do this. I wanted to target high school students to influence their pursuit of scientific and technical careers in college," said Navarro.

The Centrifu-G team entered this competition in September 2004 by submitting a letter of intent. The team then

submitted an experimental proposal in December 2004. The Centrifu-G team was one of 27 from 15 states that submitted a proposal to the competition. Based on the novelty of the experiment and the relation to current space biology research the team was chosen as the winner by a panel of judges from Ames.

During the student experiment at Ames, their educational advisor, a biology teacher from Troy High School, helped to guide them through the scientific process, while learning about hands-on methods in biology, physics and mathematics as they relate to NASA's exploration biology research.

"The best part of this entire experience is knowing that this will greatly impact the students' futures, perhaps even inspire them to want to pursue space studies," said Rebecca Johns, Centrifu-G team advisor and a biology teacher at Troy High School.

BY NICKI RAYL

Community grants have NASA roots

The Community Foundation Silicon Valley was very pleased, but a bit mystified, when they received a check for \$1.2 million from the estate of Louise Edgerton with instructions to assist children in pursuing their interest in computers, science, space, flight and related fields. They had no idea who Mrs. Edgerton was, or why she left them this unique gift.

A bit of internet sleuthing led them to Glenn Bugos of the Ames History Office where it was discovered the Edgerton's late husband, Millard, worked as a contractor at Ames for a number of years.

Millard's career spanned a variety of areas at Ames, including the Vertical Mo-



NASA photos by Jim Taylor



After the ceremony, students involved with Rockit Science, one of the groups that received a grant, demonstrated one of the hands-on projects they participate in as part of the program.

Michelle McGurk, director of communications and marketing for the Community Foundation Silicon Valley, presents one of several grants made possible by the Edgerton family during a recent ceremony held at Ames.

tion Simulator, the SETI project and the Flite Cobra helicopter team. He also created opportunities for schoolchildren to connect to the space shuttle astronauts by radio.

The Edgerton endowment was used by the Community Foundation Silicon Valley to create the Edgerton Fund for Youth Math and Science Education. Ames hosted a ceremony in the NASA Exploration Center on May 18, where the first grants from the fund were awarded to seven local nonprofits.



Dutch Ambassador visits Ames

Ames Center Director G. Scott Hubbard (right) greets Dutch ambassador Boudewijn J. van Eenennaam, who visited Ames in June for a tour of the center. Accompanying him were his wife, Jeltje, the Dutch Consul General David A. H. van Iterson, and local representatives of the Dutch embassy, Bart Sattler and Anouschka Versleijen.

NASA photo by Tom Trower

Lessons learned in project management, systems engineering

The Ames Systems Management Office (SMO) was established by the director to improve the effectiveness and efficiency of the Center's projects. Since this time, the SMO has interacted with many projects and has documented numerous lessons learned to share with the rest of the Center. These lessons can be read in their entirety on the SMO's Web site at <http://smo.arc.nasa.gov/>.

The following is a summary of lessons learned concerning the importance of developing mutually supportive center-to-center relations. This is a challenge made especially difficult since the agency has a long and storied history with many chapters associated with one Center or another. Therefore, efforts to build upon these successes can lead to competition and rivalries which, while in the main can be healthy, can also lead to trouble if not managed properly.

The project corresponding to this lesson learned was part of a program managed out of a different center. Due to historical and existing rivalries, competition and cultural differences between the centers, the project manager (PM) had difficulty devoting time to the project's technical issues since most of her time was spent smoothing over cultural and personnel conflicts between her multi-center constituents. Realizing the risk this environment posed to the project and the drain it put on her resources, the PM developed a plan to ensure that the project maintained an affable and effective relationship with the program office. The major components of this plan focused on key personnel selections, funding allocations, face-to-face meetings, frequent communications and basic bridge building activities.

Throughout the process of developing this relationship, the following four lessons learned were noted. First, a project's relationship with and attitude toward non-home center personnel, processes and cultures may be as significant an issue as any that are technical. In fact, if not managed properly, this issue can take up the majority of a PM's time. Second, personnel with antagonistic views toward other centers can undermine the success of the project if placed in a position requiring center-to-center communications. Third, in order to demonstrate and strengthen close ties with other centers, it may be preferential, if not necessary, to direct some project resources and key responsibilities to other centers. This allocation of resources may not be understood or appreciated at the PM's home center; therefore an effort should be made to highlight and communicate the best interests of the project. Fourth, the use of

rewards and other incentives can damage morale if they are not given in a fair and unbiased manner.

Based on her experiences forging a good relationship with the project's outside constituents (external to Ames), the following four recommendations were made. First, projects should plan for and hold team-building exercises, face-to-face meetings and frequently scheduled communications with all center-to-center principals. Second, tactical and strategic placement of personnel having significant communications with their

non-home center counterparts should be based on a person's capability to build positive relationships and act in the best interest of the project. Third, resources should be placed with those organizations that have the most potential to contribute to the project's goals even if that organization resides at another center. Last, the project should be especially sensitive to the contributions made by other organizations and practice diligence and fairness in handing out praise and rewards for work that is well done.

BY DONALD MENDOZA

Contest winners capture nature's beauty

In celebration of Earth Day 2005, employees centerwide submitted photos to the Environmental Services Office that they felt creatively reflected this year's Earth Day theme of 'Sustainability,' the term used to

describe humanity's desire to nourish economic growth and environmental health for the long term.

Attendees of the Earth Day informational fair at the Mega Bites Café selected their favorite photos.



First place 'Silent Singer' by Nancy Bilderback



Second place 'Lost' by Joel Lachter



Third place 'Nature's Yellow Carpet in the Making' by Faten Mansour

Events Calendar

Ames Amateur Radio Club, third Thursday of each month, 12 noon, N-T28 (across from N-255). POC: Michael Wright, KG6BFK, at ext. 4-6262.

Ames Ballroom Dance Club. Classes on Tuesdays. Beginning classes meet at 5:15 p.m. Higher-level class meets at 5:50 p.m. Held in Bldg. 944, the Rec. Center. POC: Helen Hwang at helen.hwang@nasa.gov, ext. 4-1368.

Ames Bowling League, Palo Alto Bowl on Tuesday nights. Seeking full-time bowlers and substitutes. Questions to sign up: Mike Liu at ext. 4-1132.

Ames Child Care Center Board of Directors Mtg, every other Thursday (check Web site for meeting dates: <http://acc.arc.nasa.gov>), 12 noon to 1:30 p.m., N-210, Rm. 205. POC: Cheryl Quinn, ext. 4-5793.

Ames Contractor Council Mtg, first Wednesday each month, 11 a.m., N-200, Comm. Rm. POC: Linda McCahon, ext. 4-1891.

Ames Diabetics (AAD), 1st & 3rd Weds, 12 noon to 1 p.m., at Ames Mega Bites, Sun room. Support group discusses news affecting diabetics. POC: Bob Mohlenhoff, ext. 4-2523/e-mail at: bmohlenhoff@mail.arc.nasa.gov.

Ames Federal Employees Union (AFEU) Mtg, third Wednesday of ea. month, 12 p.m. to 1 p.m., Bldg. 221, Rm 104. Guests welcome. Info at: <http://www.afeu.org>. POC: Marianne Mosher, ext. 4-4055.

Ames Mac Support Group Mtg, third Tuesday of ea. month, 11:30 a.m. to 1 p.m., Bldg. N262, Rm 180. POC: Julie ext. 4-0340.

Ames Model Aircraft Club, flying radio-controlled aircraft at the north end of Parsons Ave. on weekend mornings. POC: Mark Sumich, ext. 4-6193.

Ames Sailing Club Mtg, second Thursday of ea. month (Feb through Nov), from 11:30 a.m. -1 p.m. in the special events room in the Ames Visitor Center in N-223. All are welcome. POC: Jeff Smith, ext. 4-2586.

Environmental, Health and Safety Information Forum, first Thursday of each month, 8:30 a.m. to 9:30

a.m., Bldg. 221/Rm 155. URL: <http://q.arc.nasa.gov/qe/events/EHSseries/> POC: Stacy St. Louis at ext. 4-6810.

The Hispanic Advisory Committee for Excellence HACE Mtg, first Thurs of month in N255 room 101C from 11:45 a.m. to 12:45 p.m. POC: Eric Kristich at ext. 4-5137 and Mark Leon at ext. 4-6498.

Jetstream Toastmasters, Mondays, 12 p.m. to 1 p.m., N-269/Rm.179. POC: Becky Brondos at ext. 4-1959, bbrondos@mail.arc.nasa.gov or Bob Hilton at ext. 4-1500, bhilton@mail.arc.nasa.gov.

Nat'l Association of Retired Federal Employees, (NARFE). Former and current federal employees. Your only contact with Congress. Join to protect your federal retirement. Chptr #50 will then meet on the first Fri. of each month at HomeTown Buffet, 2670 El Camino (at Kiely), S. Clara, 11 a.m. lunch. POC Earl Keener (408) 241-4459 or NARFE 1-800-627-3394.

Native American Advisory Committee Mtg, fourth Tues each month, 12 noon to 1 p.m., Bldg. 19, Rm 1096. POC: Mike Liu at ext. 4-1132.

NASA scientists collaborate with Russians

NASA scientists are collaborating with Russian colleagues in an effort to learn more about cell growth in space.

At the invitation of the Russian Academy of Sciences' Institute of Biomedical Problems, investigators from NASA Ames are participating in pre- and post-flight science experiments designed to examine gravity's relationship to biological processes. The experiments were launched May 31 aboard the Russian Foton-M2 mission from the Baikonur Cosmodrome in Kazakhstan, and were recovered 16 days later when the capsule returned to Earth near the border between Russia and Kazakhstan. The European Space Agency and a number of other space agencies also are co-operating with Russia on this mission.

"We have a rich history of highly productive research carried out on Russian unmanned spacecraft over several decades. We are pleased to be working with our Russian colleagues in support of the Vision for Space Exploration," said Terri Lomax, deputy associate administrator for research at NASA headquarters, Washington.

"Our collaboration with the Institute of Biomedical Problems and the experiments aboard the Foton spacecraft will help us understand how the microgravity environment affects live organisms," said Eduardo Almeida, NASA Ames principal investigator for both the gecko cell growth and ribbed newt tissue regeneration studies.

Studies conducted with specimens flown aboard the Foton-M2 mission will examine cell growth and morphological tissue changes in geckos, cell proliferation and tissue regeneration of ribbed newts, gene expression and neural re-adaptation of snail vestibular cells to Earth's gravity, and spaceflight's effects on genetic structures in bacteria.

"This is a unique study and a unique opportunity to collaborate with our Russian counterparts," Almeida said.

The two other American principal investigators, Ames researcher Richard Boyle, and Barry Pyle of Montana State University, Bozeman, who are conducting separate studies, have been instrumental in facilitating the scientific goals of the Foton-M2 mission. Boyle is the Ames science lead for Foton-M2 and is working with investigators at Russia's Institute of Higher Nervous Activity and Neurophysiology to study the neural and biochemical responses of snail statocyst receptors, which play essentially the same role as a human's inner ear in giving balance cues, following microgravity exposure. They will investigate the process of re-adaptation to Earth's gravity and how this affects coordination in the brain and nervous system.

Pyle is participating in an experiment studying the transient and permanent effects of spaceflight on genetic structures of the bacteria *Streptomyces lividins*. Mike Skidmore, the NASA Ames-based project manager, is teamed with his deputy, Marilyn Vasques, to coordinate all aspects of the American participation in this international Foton-M2 flight.

"We know that long-term space travel results in a loss of bone and muscle mass. Our participation in the Foton mission will allow us to accurately quantify the rates of cell growth in whole animals using nucleotide analog markers. The results from this study will be used to test our theory that gravity gives a signal for cells to grow, and that it promotes stem cell-based tissue regeneration," said Almeida.

BY NICHOLAS A. VERONICO

Safety Data

NASA-Ames Occupational Illness-Injury Data for Calendar Year-to-Date 2005 Jan. 1, 2005 – May 31, 2005

	Civil Servants	Contractors
Not recordable, first aid cases	17	9
Recordable no lost-time cases	4	4
Recordable LOST-TIME cases	0	0
Lost workdays	0	0
Restricted duty days	0	82

Data above is as of 06/14/05. May be subject to slight adjustment in the event of a new case or new information regarding an existing case.

Ames emergency announcements

To hear the centerwide status recording, call (650) 604-9999 for information announcements and emergency instructions for Ames employees. You can also listen to 1700 KHz AM radio for the same information.

Ames Classifieds

Ads for the next issue should be sent to astrogram@mail.arc.nasa.gov and must be resubmitted for each issue. Ads must involve personal needs or items; (no commercial/third-party ads) and will run on a space-available basis only. First-time ads are given priority. Ads must include home phone numbers; Ames extensions and email addresses will be accepted for carpool and lost and found ads only. Due to the volume of material received, we are unable to verify the accuracy of the statements made in the ads. Caveat emptor!

Housing

4 bd/2 ba Sunnyvale house for rent, \$2,400/mo., negotiable. Cupertino school district, nice neighborhood. 1,800 sq. ft. hardwood floor, quite back yard. Small pet OK. Avail. July 1. Call (408) 718-9728 for details.

Good sized room in 4 bd/2 ba home, excellent, quiet Mtn View area close to Ames. Washer, dryer, microwave, wired for cable modem. Tidy person and nonsmoker. Easy access to Ames, 85, 237, & 101. \$475 and dep. and share utils. Avail. Sept. 1, possibly sooner. Call (650) 964-1900.

Miscellaneous

The Ames Cat Network needs help finding homes for cats trapped at Moffett. They range from feral to abandoned/lost pets. Tested, altered and inoculated. Call Iris at ext. 4-5824 if you or someone you know are interested in fostering or adopting a cat.

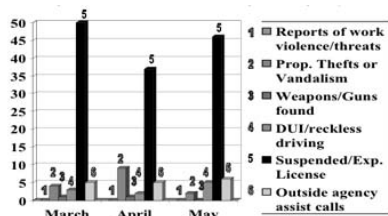
Large rabbit cage w/water bottle and litter box for sale, \$30. Azi (650) 740-3671.

17 foot Boston whaler, 1972 hull, 1991 65 hp evinrude, stainless side and bow rails, depth sounder, down riggers, bimini top, galvanized shoreline tilt trailer. \$5,900. Call (650) 369-05798. E-mail: gertnjoeb@sbcglobal.net

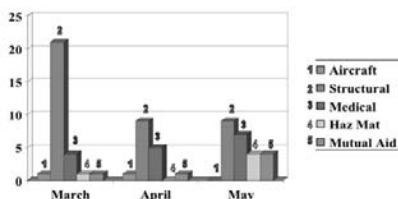
Protective Services monthly activity

A statistical summary of activities of the Protective Services Division's Security/Law Enforcement and Fire Protection Services units for the month of May 2005 is shown below.

Security/Law Enforcement Activity



Fire Protection Activity



Exchange Information

Information about products, services and opportunities provided to the employee and contractor community by the Ames Exchange Council. Visit the web site at: <http://exchange.arc.nasa.gov>

Beyond Galileo N-235 (8 a.m. to 2 p.m.)

ext. 4-6873

Ask about NASA customized gifts for special occasions.

Mega Bites N-235 (6 a.m. to 2 p.m.)

ext. 4-5969

See daily menu at: <http://exchange.arc.nasa.gov>

Visitor Center Gift Shop N-943

(10 a.m. to 4:00 p.m.) ext. 4-5412

NASA logo merchandise, souvenirs, toys, gifts and educational items.

Tickets, etc... (N-235, 8 a.m. to 2 p.m.)

ext. 4-6873

Check web site for discounts to local attractions, <http://exchange.arc.nasa.gov> and click on tickets.

NASA Lodge (N-19) 603-7100

Open 7 days a week, 7:00 a.m. to 10 p.m. Rates from \$40 - \$50.

Vacation Opportunities

Lake Tahoe-Squaw Valley Townhse, 3bd/2ba, View of slopes, close to lifts. Per night: \$250, two night minimum. Includes linens, cleaning, propane fireplace, fully equipped. Call (650) 968-4155, DBMcKellar@aol.com

South Lake Tahoe cottage w/wood fireplace, hot tub. Rates \$50 to \$130 per night. Call (650) 967-7659 or (650) 704-7732.

Vacation rental, Bass Lake, 4 mls south of Yosemite. 3bd/1.5 ba, TV, VCR, MW, frplc, BBQ, priv. boat dock. Sleeps 8. \$1,050/wk. Call (559) 642-3600 or (650) 390-9668.

Big Sur vacation rental, secluded 4bd/2ba house in canyon setting. Fully eqpd kitchen. Access to priv. beach. Tub in patio gdn. Halfway between Carmel and Big Sur. \$175/night for 2; \$225 for 4 and \$250 for more, plus \$150 cleaning dep. Call (650) 328-4427.

Tahoe Donner vacation home, 2 bd/2ba. trees, deck. Access to pools, spa, golf, horseback riding, \$280 wkend, \$650 week. Call (408) 739-9134.

Pine Mountain Lake vacation home. Access to golf, tennis, lake, swimming, horseback riding, walk to beach. Three bedrooms/sleeps 10. \$100/night. Call (408) 799-4052 or (831) 623-4054.

Incline Village: Forest Pines, Lake Tahoe condo, 3 bd/2ba, sleeps 8. Fireplace, TV/VCR/DVD, MW, W/D, jacuzzi, sauna, pool. Walk to Lake, close to ski areas. Visit Web page for pictures: <http://www.ACruiseStore.com>. \$120/night low season, \$155/night high season (holidays higher) plus \$156 cleaning fee and 12% Nevada room tax. Charlie (650) 366-1873.

Disneyland area vacation rental home, 2 bd/1ba. Nearing completion completely remodeled w/new furniture. Sleeps 6 (queen bed, bunk beds, sleeper sofa). Air hockey and football tables. Introductory rate \$600/wk, once completed rate will be \$1000/wk. Security deposit and \$100 cleaning fee required. Call (925) 846-2781.

Ski Park City Utah, NASA Ski Week XIV, Feb 5 - 12, 2005. Space limited. E-mail Steve at exnasa@sbcglobal.net or call (408) 432-0135.

New York, 5th Ave. One fully furnished bedroom in 24 hour security bldg. overlooking Washington Square Park, \$1,000/wk or \$3,000/mo. negotiable. Call (650) 349-0238.

Paris/France: Fully furnished studio, 5th Arr, Latin Quarter, Notre Dame and Ile-St. Louis., \$1,400/wk. negotiable. Call (650) 349-0238.

Santa Cruz townhouse, 2 bedrooms plus study, 2 baths, decks, totally furnished, 3 blocks from beach, available July, August, September; \$1,600 per month. Call (831) 423-5777 (H) or (831) 277-8476 (C).

New requirements for Astrogram submissions

The Public Affairs Division welcomes your monthly submissions to the Astrogram. Your contributions ensure that the excellent work you and colleagues do receives the recognition it deserves throughout the NASA Ames community and beyond.

To improve the likelihood that your story is told in a timely manner, please be sure to submit your articles and photographs to astrogram@mail.arc.nasa.gov no later than the 10th of each month. If this date falls on the weekend or a holiday, then the following business day becomes the deadline.

Also, if you want a photographer to cover an event you're sponsoring, it's very important that you

submit a service request to the Video and Photographic Services Group at least 5 days in advance of the activity. Every effort will be made to accommodate your request whenever it's submitted, but please understand that photographers may not be available for last-minute requests, so best to plan ahead!

If you have questions about the Astrogram, contact Astrid Terlep at the aforementioned e-mail address or ext. 4-3347.

For more information about photography or video services, contact Ed Schilling at e-mail Edward.M.Schilling@nasa.gov or ext. 4-1307.

NASA, entrepreneurs developing biotechnology plan for ISS



NASA photo by Jim Taylor

Shown at a question-and-answer opportunity at the conclusion of the successful ISS Entrepreneurial Paradigm workshop are (left to right) Lynn Harper, scientific lead for integrative studies at NASA Ames' Astrobiology and Space Research Directorate; Ames Center Director G. Scott Hubbard; Dr. Cheryl Nickerson, associate professor of microbiology and immunology at Tulane University's Health Science Center; Bruce Pittman, Profit Engineering and the Silicon Valley Space Club; and Alan Marty, executive-in-residence at the venture capital arm of JP Morgan Partners.

NASA, space service providers, scientists and business executives met in Santa Clara on June 21 and 22 to evaluate the business case and feasibility of a new entrepreneurial paradigm with a focus on biotechnology for the International Space Station (ISS).

"Until recently, the business case for commercial endeavors on the ISS was not compelling," said NASA Ames Center Director G. Scott Hubbard. "But recent information shows that the space environment and the ISS may offer an important, and as yet undeveloped, new intellectual property arena for biotech. Emerging launch industries, advances in biotech, improvements in automation and innovative concepts for returning samples from space offer new opportunities to solve the throughput problem that has been the major impediment to space biotech development."

A formal report from the workshop will be presented to NASA Administrator Mike Griffin by mid-July, 2005.



National Aeronautics and Space Administration

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